BRODIN, M.S.; KROCHUK, A.S.

Optical properties of a phenanthrene single crystal in the region of main exciton absorption bands. Ukr.fiz.zhur. 7 no.11:1205-1213 N '62. (MIRA 15:12)
(Phenanthrene crystals—Optical properties) (Excitons) (Dispersion)

BRODIN, M.S.; KROCHUK, A.S.

Anomalous dependence of absorption intensity on thickness in CuCl single crystals. Fiz. tver. tela 5 no.12:3609-3611 D '63. (MIRA 17:2)

1. Institut fiziki AN SSSR, Kiyev.

L 24699-65 EWP(e)/EWT(m) WH

ACCESSION NR: AP4048872 S/0185/64/009/010/1150/1151

AUTHOR: Brodin, M. S.; Vatul'ov, V. M.; Zakrevs'ky*y, S. V. 12, 11

TITLE: Luminescence appearing in crystals of sodium uranyl acetate irradiated by a ruby laser beam

SOURCE: Ukrayins'ky*y fizy*chny*y zhurnal, v. 9, no. 10, 1964, 1150-1151

TOPIC TAGS: nonlinear effect, crystal irradiation, crystalline powder irradiation, crystal irradiation with laser, crystal luminescence, ruby laser beam

ABSTRACT: The high intensity of laser beams makes is possible to observe and investigate a series of nonlinear effects. It also makes the observation of luminescence possible when a substance becomes transparent to the frequency of the exciting light. To investigate nonlinear effects, sodium uranyl acetate single crystals and crystalline powders were irradiated with the focused beam of a ruby laser and the luminescence spectra were

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ACCESSION NR: AP4048872

photographed. Irradiation of crystals with a focused laser beam caused the formation of cavities or through-holes. The destruction of the crystals may be due to mechanical forces or to thermal effects. One may conclude that the line-structured single-crystal spectrum is associated with laser excited luminescence resulting from two-photon absorption or absorption of light of another harmonic. It also is possible that this spectral structure is due to luminescence of several defect centers which are formed when the crystal is irradiated by a laser beam. Large overlapping of absorption and luminescence spectra in the case of a single crystal can be associated with the fact that a crystal region which radiates is heated to a high temperature, or that luminescence is superposed by radiation with a continuous spectrum which penetrates through a layer of crystal. Orig. art. has: 1 figure.

ASSOCIATION: Insty*tut fizy*ky* AN URSR, Kiev (Institute of Physics, AN URSR)

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L 6494-66 EWA(k)/FBD/EWT(l)/EWT(m)/EWA(h)/T/EWP(t)/EWP(b)/EWA(m)-2/EWP(k)/
ACC NR: AP5027992 EEC(k)-2 SOURCE CODE: UR/0386/65/002/007/0317/0320
SCTB/IJP(c) WG/JD/GG

AUTHOR: Brodin, M. S.; Vatulev, V. N.; Zakrevskiy, S. V. 44,55

ORG: Institute of Physics, Academy of Sciences UkrSSR, Kiev (Institut fiziki Akademii nauk Ukrainskoy SSR) 44,55

TITLE: The effect of intense laser radiation on the dispersive properties of "transparent" crystals 25,44 21,44,55

SOURCE: Zhurnal eksperimental'noy i teoreticheskoy fiziki. Pis'ma v redaktsiyu. (Prilozheniye), v. 2, no. 7, 1965, 317-320, and insert facing page 316

TOPIC TAGS: light dispersion, laser effect, thermal optic effect, light interference, cadmium sulfide, zinc sulfide, semiconductor 29 27

ABSTRACT: The authors have observed changes induced in the dispersive properties of some semiconductor crystals which are transparent in the ruby-laser radiation range, at the instant of a laser pulse. These changes are important in studies of the conditions for self-trapping of a laser beam, for the generation of harmonics by different means, and for similar phenomena. The spectra were obtained with an ISSh-500 flash lamp with flash duration time of 2—3 μsec.

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A delay circuit made it possible to photograph the spectrum during different instants of the laser pulse (~400 μsec long and with energy 1.5 J). CdS crystals in the form of thin strips were fastened on a glass base. Besides the absorption edge, it was possible to distinguish on the spectrograms obtained at room temperature also the interference pattern due to multiple reflection. By photographing the spectrum at the instant the laser pulse is applied with the laser beam partially focused, small but distinct shifts of the interference fringes towards the longer wavelengths was observed. These shifts corresponded to an approximate average increase of ~0.01 in the refractive index. Sharper focusing (spot diameter smaller than 1 mm) damages the irradiated section of the crystal. A small shift of the interference pattern was observed also in the crystal regions adjacent to the irradiated section. Preliminary observations carried out on some ZnS samples have shown an equally noticeable shift. While the mechanism of the observed changes in the dispersion and absorption properties is not yet clear, it is suggested that the changes pertaining directly to the irradiated section of the crystal can be connected with the action of the electric field of the light wave, and also with some heating of the crystal. It is less probable that the observed shift is due to the influence of the elastic waves that may be produced. The situation is even less clear with respect to the changes in the non-irradiated section of the crystal. A final clarification of the mechanism of the described phenomena calls for further

L 6494-66
ACC NR: AP5027992

research. The effect of local and over-all heating of the crystal is discussed briefly. Orig. art. has: 1 figure.

SUB CODE: OP, SS/ SUBM DATE: 26Jul65/ ORIG REF: 001/ OTH REF: 003/
ATD PRESS: 4140

nw
Card 3/3

L 5430-66 EWT(m)/EPF(c)/EWP(j) RM

ACCESSION NR: AP5019755 UR/0051/65/019/002/0235/0238
539.194 : 547.672

AUTHOR: Brodin, M. S.; Marisova, S. V.

TITLE: The oscillator strength of the first electronic transition of crystalline anthracene

SOURCE: Optika i spektroskopiya, v. 19, no. 2, 1965, 235-238

TOPIC TAGS: anthracene, oscillator strength, electron transition, absorption spectrum, electric polarization

ABSTRACT: This research was motivated by the lack of reliable data on the oscillator strengths of the lowest electronic transitions in the absorption spectrum of anthracene. They have therefore determined the oscillator strength f of the first electronic level with greater accuracy, by measuring more accurately the integrated intensity (eliminating factors leading to overexposure of the b component) and by using a more accurate formula for f. The absorption intensities were measured in thin single-crystal layers (less than 0.1 μ) grown by sublimation and placed in contact with a small quartz plate. The intensity measurements were made by a photographic method with a 4 Å/mm spectrograph, the spectra being photographed in polarized light. The absorption measurements were made at 20K. It was found that

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ACCESSION NR: AP5019755

$f \approx 0.43$ for the entire electron-vibrational system, which is four times the value (~0.1) usually quoted in the literature. Values of the Davydov splitting (160 $cm^{-1}$) and of the polarization ratio (~7) calculated from these oscillator strengths indicate that the mutual perturbation of the first and second electronic transitions is negligible in the anthracene crystal. Orig. art. has: 1 figure, 1 formula, and 1 table.

ASSOCIATION: none

SUBMITTED: 07Jun64 ENCL: 00 SUB CODE: SS, OP

NR REF SOV: 004 OTHER: 007

Card 2/2

L 9914-66 EWT(1)/EWT(m)/T/EWP(t)/EWP(b)/EWA(m)-2/EWA(c) IJP(c) JD/AT

ACC NR: AP5022870 SOURCE CODE: UR/0051/65/019/003/0444/0446

AUTHOR: Brodin, M. S.; Vitrikhovskiy, N. I.; Kurik, M. V.

ORG: None

TITLE: Indirect transitions in CdS crystals

SOURCE: Optika i spektroskopiya, v. 19, no. 3, 1965, 444-446

TOPIC TAGS: cadmium sulfide, single crystal, electron transition, temperature dependence, exciton absorption

ABSTRACT: The temperature dependence of the absorption edge of CdS single crystals was measured for plane-parallel plates cut from a large single crystal grown by the reaction of the constituent materials in an inert atmosphere. The purpose of the investigation was to check on earlier conclusions by others concerning the transitions in CdS, which are based essentially on data obtained at high absorption coefficients. The crystals investigated had donor concentrations $1.3 \times 10^{18}$ and $3.3 \times 10^{18}$ $cm^{-3}$, and to ensure the required accuracy in measuring small absorption coefficients, the readings were made on crystals between 2.4 and 2.5 mm thick. The intensities were measured by photoelectric technique and the absorption coefficients corrected for optical reflection from the crystal. The shape and temperature dependence of the edge in the 1--15 $cm^{-1}$ region, as well as the changes which accompanied the addition of large amounts of indium, show that the results must be attributed to indirect transitions. While it is not possible to draw any conclusions concerning the

UDC: 535.34 : 548.0

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ACC NR: AP5022870

bands in which the transitions are occurring, it can be assumed that the transitions either occur in an additional extremum of the main exciton band, or that there is an additional exciton band to which transitions are forbidden in the dipole approximation. A change in the indium concentration from 1.3 to 3.3 x $10^{18}$ $cm^{-3}$ is accompanied by a sharp change on the edge, which shifts toward lower energies by an amount approximately equal to the energy of the optical phonon (0.036 ± 0.002 ev). Orig. art. has: 2 figures.

SUB CODE: 20/ SUBM DATE: 07Sep64/ ORIG REF: 001/ OTH REF: 005

Card 2/2

L 29517-65 EWT(1)/EWT(m) IJP(c) RM

ACCESSION NR: AP5005913 S/0185/65/010/002/0178/0186

AUTHOR: Brodin, M. S.; Reznychenko, V. Ya. (Reznichenko, V. Ya.)

TITLE: Investigation of a circular polarization of the luminescence of a sodium uranylacetate crystal

SOURCE: Ukrayins'kyy fizychnyy zhurnal, v. 10, no. 2, 1965, 178-186

TOPIC TAGS: circular polarization, luminescence polarization, luminescence circular polarization, circular dichroism, polarization degree

ABSTRACT: The circular polarization P of the principal luminescence bands of sodium uranylacetate crystals was measured at temperatures of liquid helium, hydrogen, and nitrogen (20 and 77K), and the dependence of P on temperature, treatment, and aging was investigated. In addition, the luminescence spectrum at T = 20K was systematized. Contrary to the generally accepted point of view (based on quantitative investigations conducted by Samoylov (ZhETF, 18, 1030, 1948)), the degree of polarization of these bands appears to be incomplete (it did not exceed 0.63 in the specimens investigated). The polarization was less than the circular dichroism of the respective exciton bands in the absorption spectrum. Increased temperature and aging of the crystal led to a marked decrease in polarization without disturb-

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ACCESSION NR: AP5005913

ing the resonance coincidence of the initial luminescence and absorption bands, especially when the crystals had undergone previous thermal treatment, i.e., either heating or cooling. Such treatment usually spoils crystals by increasing the number of defects in them. Thus, an increase in defects results in circular polarization of the luminescence bands and in decreased luminescence brightness. The assumption is made that defects play a double role in the mechanism of de-excitation of crystals by 1) promoting exciton de-excitation without localization of energy (widespread circular dichroism is associated with this) and 2) increasing the interaction between the zones of the left and right excitons. The latter factor leads to decreased circular polarization. Orig art has: 3 figures and 2 tables [AT]

ASSOCIATION: Instytut fizyky AN URSR, Kiev (Institute of Physics, AN UkrSSR)

SUBMITTED: 09May64 ENCL: 00 SUB CODE: SS, OP

NO REF SOV: 009 OTHER: 001 ATD PRESS: 3197

Card 2/2

L 51446-65 EWT(l)/EWT(m)/T/EWP(t)/EEC(b)-2/EWP(b) Pi-4 IJP(c) GG
ACCESSION NR: AP5011067 UR/0185/65/010/004/0410/0415

AUTHOR: Brodin, M. S.; Strashnykova, M. I. (Strashnikova, M. I.)

TITLE: Singularities of the reflection spectrum of CdS crystal in the region of the exciton bands

SOURCE: Ukrayins'kyy fizychnyy zhurnal, v. 10, no. 4, 1965, 410-415

TOPIC TAGS: exciton band, reflection spectrum, reflection coefficient

ABSTRACT: The reflection spectra of CdS were investigated in the region of its exciton bands at temperature 20K. Additional extrema, which do not correspond to the actual form of the absorption band, were observed in the regions of the bands A and B, corresponding to the excitation of the initial states of the series $\Gamma_9 - \Gamma_7$ and $\Gamma_7 - \Gamma_7$. The first extremum (A-band) coincides with the frequency of the longitudinal exciton and offers evidence that the effects of spatial dispersion, discussed by J. J. Hopfield and D. G. Thomas (Phys. Rev. v. 132, 563, 1963) become appreciable at 20K. The additional extremum of the reflection of the B-band is located on the long-wave skirt of the band and is observed only when the light is polarized (E⊥C). It is concluded that transitions take place in two different

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L 51446-65
ACCESSION NR: AP5011067

bands, whose parameters can differ greatly. If the additional extremum is assumed to be due to spatial dispersion, then according to the theoretical calculations of Hopfield and Thomas it must be assumed that the lifetime in the E⊥C band is much longer than the lifetime in the E∥C band. This assumption agrees with the fact that the exciton bands corresponding to higher orders of the series are easier to observe at E⊥C than at E∥C. However, the presence of an additional band can be also connected with a quadrupole transition. The measured curves of the reflection coefficient were compared with those calculated by the Fresnel formula using dispersion and absorption data obtained by the authors previously (FTT v. 4, 2454, 1962). The difference between the curves lies in the presence of the above mentioned peak on the experimental curve, and also in some difference in the amplitudes of the curve. It is deduced that the dispersion of the deep and near-surface layers of the crystal is equal. Orig. art. has: 3 figures.

ASSOCIATION: Instytut fizyky AN URSR, Kyyiv [Institut fiziki AN UkrSSR, Kiev ]
(Physics Institute AN UkrSSR)

SUBMITTED: 18Jan64 ENCL: 00 SUB CODE: OP, SS

NR REF SOV: 004 OTHER: 006

Card 2/2

L 10568-66 EWT(l)/EWT(m)/T/EWP(t)/EWP(b) LJP(c) JD/GG
ACC NR: AP5025398 SOURCE CODE: UR/0181/65/007/010/3112/3114

AUTHOR: Brodin, M. S.; Kurik, M. V.; Yurtsenyuk, S. P.

ORG: Institute of Physics AN UkrSSR, Kiev (Institut fiziki AN UkrSSR)

TITLE: Optical absorption and energy band structure in CdS -CdSe, crystals

SOURCE: Fizika tverdogo tela, v. 7, no. 10, 1965, 3112-3114

TOPIC TAGS: cadmium sulfide, cadmium selenide, semiconductor research, energy band structure, crystal theory, forbidden zone width, absorption spectrum

ABSTRACT: The absorption edge in CdS-CdSe crystals is carefully measured, and the data are used to determine the nature of the change in the basic parameters of the energy bands with variations in the composition of the specimens. A graph is given showing the relationship between the absorption coefficient for $CdS_x$-$CdSe_{1-x}$ crystals and wavelength. The data show that the width of the forbidden band varies linearly with composition. Low-temperature reflection spectra were used for determining the position of the fundamental exciton bands *A*, *B* and *C* associated with electron transitions from the three valence sublevels to the exciton band, and

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ACC NR: AP5025398

spin-orbital splitting and splitting by the crystal field were then determined. A linear increase was observed in $\Delta_{cr.}$ with an increase in the percent content of selenium, while the increase in $\Delta_{s.o.}$ was slightly divergent from linear. The increases were from 0.026 ev (pure CdS) to 0.04 ev (pure CdSe) in the first case and from 0.066 to 0.415 ev in the second. The steeper increase in spin-orbital splitting is due to the higher atomic number of selenium together with the fact that spin-orbital interaction is basically determined by the number of inner electrons. With the transition from CdS to CdSe, the effective masses of all bands decrease according to a linear law. Orig. art. has: 2 figures, 4 formulas.

SUB CODE: 20/ SUBM DATE: 05May65/ ORIG REF: 005/ OTH REF: 011

Card 2/2

BRODIN, M.S.; VATULEV, V.N.; ZAKREVSKIY, S.V.

Effect of intense laser radiation on the dispersive properties of "transparent" crystals. Pis'. v red. Zhur. eksper. i teoret. fiz. 2 no. 7:317-320 O '65. (MIRA 18:12)

1. Institut fiziki AN UkrSSR, Kiyev. Submitted July 28, 1965.

L 01058-67 EWT(1)/EWP(e)/EWT(m)/EEC(k)-2/T/EWP(t)/ETI/EWP(k) IJP(c) AT/WH/WG/

ACC NR: AT6015132 GD/JD SOURCE CODE: UR/0000/66/000/000/0077/0090

AUTHOR: Brodin, M. S.; Vatulev, V. N.; Zakrevskiy, S. V.; Kamuz, A. M.

ORG: Institute of Physics, AN UkrSSR (Institut fiziki AN UkrSSR)

TITLE: Some effects of the interaction between a ruby-laser beam and transparent crystals

SOURCE: Respublikanskiy seminar po kvantovoy elektronike. Kvantovaya elektronika (Quantum electronics); trudy seminara. Kiev, Naukova dumka, 1966, 77-90

TOPIC TAGS: laser, ruby laser, solid state laser

ABSTRACT: The two-photon effects in some crystals and the effect of a laser beam on crystal dispersion were studied by the authors for some time. The mechanism of crystal destruction in some experiments could not be explained by simple heating. Additional experiments intended to clarify some points are described in the present article. A ruby crystal 12-cm long 12-mm diameter, a polished-tin reflector, and an IFP-2000 flashtube were used in the test laser. The radiation spectrum of anthracene powder served to verify the intensity of the laser beam and the method of

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ACC NR: AT6015132

spectrum recording. Both structured and structureless radiation spectra were observed in sodium-uranyl-acetate crystals; dimples, pinholes, and small cracks were formed in the crystals under the influence of the focused laser beam. The effects of a concentrated beam upon dispersion and fundamental-absorption-edge position were studied on ZnS and CdS crystals. It was found that a nonfocused laser beam did not affect the spectrum; a sharp-focused beam caused a long-wave displacement of all visible interference lines and absorption edge; various interpretations are discussed. Samples of anthracene, NaCl, KCl, KBr, and plexiglas were tested for destruction by sharp-focused laser pulses. The mechanism of destruction was found to be complex, dependent on the properties of the specimen, and resembling application of large local mechanical forces. Orig. art. has: 5 figures.

SUB CODE: 20 / SUBM DATE: 12Feb66 / ORIG REF: 008 / OTH REF: 016

awm
Card 2/2

L 21392-66 FBD/EWT(1)/EWP(e)/EWT(m)/EEC(k)-2/ETC(f)/EWG(m)/T/EWP(t)/EWP(k)/EWA(h)
ACC NR: AP6009073 SOURCE CODE: UR/0185/66/011/003/0344/0345
IJP(c) WG/RDW/JD/WH

AUTHOR: Brodin, M. S.; Vytrykhovs'kyy, M. I.; Zakrevs'kyy, S. V.; Reznichenko, V. Ya.

ORG: Physics Institute, AN URSR (Instytut fizyky AN URSR); Institute of Semiconductors, AN URSR, Kiev (Instytut napivprovidnykiv AN URSR)

TITLE: Laser-type emission by CdS—CdSe crystals by means of ruby-laser two-photon excitation

SOURCE: Ukrayins'kyy fizychnyy zhurnal, v. 11, no. 3, 1966, 344-345

TOPIC TAGS: mixed crystal, luminescent crystal, laser pump, laser pumping

ABSTRACT: Investigations were made of the emission of CdS—CdSe mixed crystals pumped by a ruby-laser two-photon mechanism to determine the possibility of laser generation. Three-component CdS—CdSe crystals with 28, 37, 63% CdSe were investigated. Their forbidden gap widths at 77K were 2.24, 2.28, and 2.02 ev, respectively. The crystals were cut as rectangle parallelepipeds with accurately polished plane-parallel faces. Their thickness varied from 1 to 2.5 mm. Thin single-crystal plates with thickly grooved faces were also investigated. Specimens cooled to 77K were excited by single pulses from a ruby laser. The pump power density varied from 10 to 100 Mw/cm$^2$. The emission spectra were photographed with a spectrograph. One narrow band located close to the absorption edge was observed in the luminescence spectra of all crystals at two-photon excitation. The band was sharply polarized in the direction perpendicular to the hexagonal axis c. The width of the band in the

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ACC NR: AP6009073

case of massive crystals with plane-parallel faces decreased when the pumping was increased. At maximum pumping it becomes 10—15 $cm^{-1}$. Under the same pumping conditions the width of the band of imperfect lamina was considerably larger, approximately 80—100 $cm^{-1}$. The intensity at the maximum of the band increased, when the pump force increased and at a pump force density of 100 $Mw/cm^2$ it became quite large. At sufficiently high pumping, the emission of crystals with plane-parallel faces had a directed character. For a $CdS_{0.72}$—$CdSe_{0.28}$ crystal 1 mm thick, the divergence of the beams was 3°. A value of 5—7 $cm^{-1}$ was obtained for the coefficient of two-photon absorption at a maximum density of the laser emission force at which the crystal is still intact. Orig. art. has: 1 figure. [JA]

SUB CODE: 20/ SUBM DATE: 27Dec65/ ORIG REF: 004/ ATD PRESS: 4221

Card 2/2 ULR

L 39688-66 EWT(1)/EWT(m)/T/EWP(t) IJP(c) JD/GD-2

ACC NR: AP6009643 SOURCE CODE: UR/0181/66/008/003/0684/0687

AUTHOR: Brodin, M. S.; Strashnikova, M. I. 16

ORG: Institute of Physics, AN UkrSSR, Kiev (Institut fiziki AN UkrSSR) B

TITLE: Optical characteristics of single-crystal CdS deep inside the intrinsic absorption, and the structure of the energy bands

SOURCE: Fizika tverdogo tela, v. 8, no. 3, 1966, 684-687

TOPIC TAGS: cadmium sulfide, single crystal, exciton energy band structure, conduction band, light absorption, light dispersion, light transmission, temperature dependence, light polarization

ABSTRACT: The absorption and dispersion curves of CdS single-crystal thin films (0.1 μ), grown by sublimation from the gas phase, were determined in polarized light in the spectral interval 5,000--2,700 Å, corresponding to excitation of the bottom of the conduction band. The absorption curves were determined by directly measuring the optical transmission by photographic and photoelectric methods. The dispersion curves were obtained by an interference method using a Jamin interferometer. It is concluded from the plotted absorption and dispersion curves that at room temperature and lower the absorption increases monotonically with decreasing

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wavelength. At 2,800 Å, a broad absorption peak is observed, best seen when the electric field is perpendicular to the c axis. This peak was not observed in earlier investigations. The temperature variation of the absorption is most clearly pronounced in the region of the exciton bands. At low temperatures the intensity of the transitions in the exciton bands are higher than the probability of transitions at the bottom of the conduction band. The polarization properties are such that the intensity of absorption is almost everywhere greater for the electric field parallel to the c axis than perpendicular to the c axis. The dispersion changes little with wavelength. The oscillator strengths of the structural absorption in the vacuum ultraviolet and the degree of polarization of this absorption are estimated from dispersion curves. It is proposed that the longest-wavelength bands from the ultraviolet group are connected with excitation of the second conduction band. The long-wave peak of the ultraviolet group observed in the absorption spectrum may be connected with indirect transitions in the same band. Orig. art. has: 2 figures.

SUB CODE: 20/ SUBM DATE: 07Jul65/ ORIG REF: 003/ OTH REF: 006

L 42815-66 EWT(m)/EWP(t)/ETI IJP(c) JD

ACC NR: AP6024494 SOURCE CODE: UR/0181/66/008/007/2231/2233

50
B

AUTHOR: Brodin, M. S.; Strashnikova, M. I.

ORG: Institute of Physics, AN UkrSSR, Kiev (Institut fiziki AN UkrSSR)

TITLE: The dispersion properties of the $CdS_x$-$CdSe_{1-x}$ system and their dependence on the crystal production method

SOURCE: Fizika tverdogo tela, v. 8, no. 7, 1966, 2231-2233

TOPIC TAGS: crystal growth, cadmium sulfide, crystal imperfection, cadmium selenide, optic dispersion

ABSTRACT: The authors present the results of direct measurements of the dispersion of crystals in the $CdS_x$-$CdSe_{1-x}$ system. These measurements not only convinced the authors of the coarseness of the extrapolations used, but also showed a rather substantial dependence of the dispersion of CdS and CdS-CdSe crystals on the method of their production. The dispersion measurements were performed at temperatures of 77 and 293K according to the diffraction method of I. V. Obreimov (Izd. AN SSSR, 1945). The authors used crystal leaves on the order of several tens of microns in thickness, grown by the synthesis method. The results are given in Table 1. It is shown that in the case of CdS as well as CdS-CdSe the indexes of refraction of a single crystal leaf are indeed substantially higher than solid crystal indexes. Figure 1 shows dispersion

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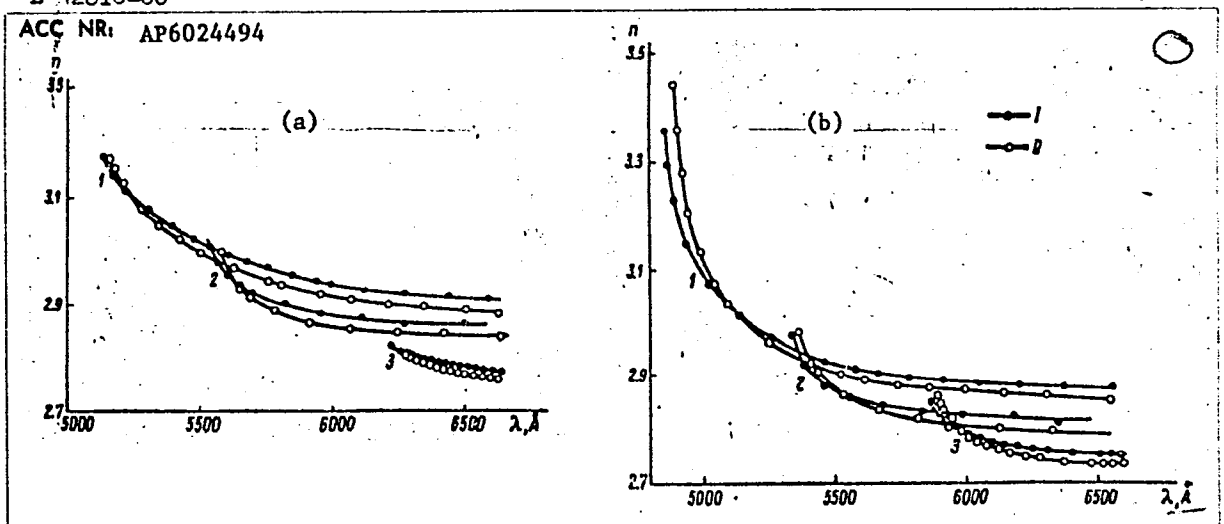


Fig. 1. Dispersion of the crystals CdS, CdS-CdSe at T = 293K (a) and T = 77K (b).

1- CdS crystal (thickness d=32μ, absorption edge at T=77K $\lambda_{edge}$=4890μ)
2- $CdS_{0.77}$-$CdSe_{0.23}$ crystal (d=4μ, $\lambda_{edge}$=5330μ)
3- $CdS_{0.47}$-$CdSe_{0.53}$ crystal (d=62μ, $\lambda_{edge}$=5880μ)
I- polarization of light along the hexagonal axis C
II- polarization of light perpendicular to the axis C



APPROVED FOR RELEASE: 06/09/2000 CIA-RDP86-00513R000306930006-4"

Table 1. Indexes of refraction $\bar{n}$ for solid and leaf crystals of CdS-CdSe (the data for $\bar{n}$ are averaged for two polarizers)

| | λ, Å | $\bar{n}$ solid | $\bar{n}$ leaf |
|---|---|---|---|
| CdS | 5774 | 2.55 ± 0.06 | 2.95 ± 0.11 |
| $CdS_{0.80}$—$CdSe_{0.20}$ | 6400 | 2.40 ± 0.04 | 2.86 ± 0.12 |
| $CdS_{0.60}$—$CdSe_{0.40}$ | 6400 | 2.42 ± 0.05 | 2.79 ± 0.13 |

curves measured by the diffraction method on thin crystals of the following composition: CdS, $CdS_{0.77}$-$CdSe_{0.23}$, and $CdS_{0.47}$-$CdSe_{0.53}$. A comparison of the curves shows that their form depends essentially on the composition. On the basis of the dispersion data obtained, the authors conclude that crystal imperfections related to the deviation from stoichiometry should lead to a substantial decrease in the intensity of the bands located in the near vacuum ultraviolet, since it is this absorption that determines, to a considerable degree, the dispersion in the region examined. Orig. art. has: 1 table and 1 figure. [26]

SUB CODE: 20/ SUBM DATE: 09Dec65/ ORIG REF: 006/ OTH REF: 003 / ATD PRESS: 5067

Card 3/3

L 04614-67 EWP(e)/EWT(m)/EWP(t)/ETI IJP(c) JD/AH

ACC NR: AP6033574 SOURCE CODE: UR/0181/66/008/010/3084/3086

AUTHOR: Brodin, M. S.; Vitrikhovskiy, N. I.; Zakrevskiy, S. V.; Reznichenko, V. Ya.

ORG: Institute of Physics, AN UkrSSR (Institut fiziki AN UkrSSR); Institute of Semiconductors, AN UkrSSR, Kiev (Institut poluprovodnikov AN UkrSSR)

64
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TITLE: Generation of compound $CdS_x$—$CdSe_{1-x}$ crystals excited by a ruby laser

15

SOURCE: Fizika tverdogo tela, v. 8, no. 10, 1966, 3084-3086

TOPIC TAGS: solid state laser, semiconductor laser, cadmium sulfide, cadmium selenide, mixed semiconductor , luminescent crystal, stimulated emission

ABSTRACT: The present work is a continuation and expansion of an earlier study (UFZh, 11, 344, 1966) on the luminescence and generation of CdS—CdSe crystals excited by a two-photon ruby laser. The following $CdS_x$—$CdSe_{1-x}$ crystal compositions with the corresponding forbidden band ΔE were studied: 84—16% (ΔE ≈ 2.44 ev); 76—24% (ΔE ≈ 2.38 ev); 72—28% (ΔE ≈ 2.34 ev); 63—37% (ΔE ≈ 2.28 ev); and 42—58% (ΔE ≈ 2.12 ev); 38—62% (ΔE ≈ 2.09 ev); and 28—72% (ΔE ≈ 2.01 ev). All values of ΔE are given for T = 77K. All specimens were cut in the form of rectangular parallelepipeds or wedges with highly polished ends to form a plane resonator. The resonator length varied from 1 to 6 mm. The N-cooled specimens were pumped by a Q-switched ruby laser at power densities of 10—150 Mw/cm$^2$ and by a mercury lamp. Experimental data indicate that generation can be achieved in $CdS_x$—$CdSe_{1-x}$ crystals

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ACC NR: AP6033574

(with x varied over a wide range) pumped by a ruby laser over a range from 4960 to 6800 A. The experimentally observed polarization of the luminescence band and its width and frequency suggest the exciton nature of the stimulated emission. The generation line shift may be emitted by optical phonons. Orig. art. has: 2 figures.

SUB CODE: 20/ SUBM DATE: 28Mar66/ ORIG REF: 008/ OTH REF: 001/ ATD PRESS: 5100

Card 2/2 LC

L 04624-67 EWT(l)/EWP(e)/EWT(m)/EEC(k)-2/T/EWP(t)/ETI/EWP(k) IJP(c) WG/JD/WH

ACC NR: AP6033528 SOURCE CODE: UR/0185/66/011/010/1151/1153

AUTHOR: Brodin, M. S.; Vatul'ov, V. M.; Kamuz, O. M.

ORG: Institute of Physics, AN UkrSSR, Kiev (Instytut fizyky AN UkrSSR)

67
B

TITLE: Self-focusing of light in NaCl crystals

SOURCE: Ukrayins'kyy fizychnyy zhurnal, v. 11, no. 10, 1966, 1151-1153

TOPIC TAGS: ruby laser, laser beam, laser optics, nonlinear optics, sodium chloride, cubic crystal

ABSTRACT: An investigation was made of special features of the broadening of a focused beam from a Q-switched ruby laser (power 10—15 Mw) in NaCl crystals. The investigation was carried out with the aim of observing self-focusing of light in a cubic crystal. A lens with a 5-cm focal length was used to focus the laser beam inside the crystal. The determination of self-focusing was made on the basis of the distribution of damage produced by the beam along its path and on the basis of photographs of the cross section of the laser beam taken from the face of the crystal. The damage produced by a Q-switched pulse differed in character and extent from that produced by a non-Q-switched pulse. Photographs showed damage scattered randomly between the boundaries of the laser beam and clear, straight lines which when enlarged resolved into dense damage of small size. These lines, which apparently belong to regions of increased intensity, can be observed ahead of the focal point, and in some

Card 1/2

L 04624-67

ACC NR: AP6033528

cases beyond the focal point. The shape of the beam deviates from the conical, and the generatrix departs from the straight line. Such a beam shape cannot be attributed to spherical aberration of the focusing lens. The increased refraction index in the field of the light wave apparently affects the shape of the beam. In the case of a sufficiently powerful beam the divergence was not observed. Damage appeared only in a channel region approximately 0.1 mm in diameter and 0.5 cm long. Such traces were observed at room temperature and when the NaCl crystal was cooled to 77K. In a crystal cooled to 77K the damage was most densely exposed at a point somewhat ahead of the focus. The traces were considerably smaller behind the focus, apparently as the result of the diminishing intensity of the light beam. The case for self-focusing is most convincing in photographs taken from the crystal face at a distance of 2 cm from the point of the focusing in the crystal. Orig. art. has: 2 figures.

SUB CODE: 20/ SUBM DATE: 30May66/ ORIG REF: 003/ OTH REF: 003/ ATD PRESS: 5100

Card 2/2 LC

SOBOLEV, V.R.; GALKIN, V.A.; BRODINOVA, N.S.

Expedient methods for the administration of tetracycline in treating chronic cholecystitis. Antibiotiki 10 no.2:173-176 F '65. (MIRA 18:5)

1. Kafedra mikrobiologii (zav. - deystvitel'nyy chlen AMN SSSR prof. Z.V.Yermol'yeva) TSentral'nogo instituta usovershenstvovaniya vrachey i kafedra fakul'tetskoy terapii (zav. - prof. A.G. Gukasyan) I Moskovskogo ordena Lenina meditsinskogo instituta imeni Sechenova.

BRODKA, Jan, mgr inz.

Approximate and exact methods of calculating the buckling of beams. Inz i bud 20 no.1:19-27 Ja '63.

BRODKA, J.

Trends in the development of profiles for light-steel construction. p.26.

(BUDOWNICTWO PRZEMYSLOWE. Vol. 6, No. 5, May 1957. Warszawa, Poland)

SO: Monthly List of East European Accessions (EEAL) LC. Vol. 6, No. 10, October 1957. Uncl.

BRODKA, J.

The use of cold-rolled profiles in steel constructions.

P. 424. (INZYNIERIA I BUDOWNICTWO)(Warszawa, Poland) Vol. 14, no. 12, Dec. 1957

SO: Monthly Index of East European Accession (EEAI) LC Vol. 7, no. 5, 1958

BRODKA, J.

Screw joints in light steel constructions. p. 348.

INZYNIERA I BUDOWNICTWO. Warszawa, Poland. Vol. 16, no. 8, Aug. 1959.

Monthly List of East European Accessions (EEAI) LC, Vol. 9, no. 2, Feb. 1960.
Uncl.

BRODKA, Jan

"Bending of sheet metal sections" by J. Romanowski. Reviewed by Jan Brodka. Przegl spaw 13 no.10:279-280 '61.

BRODKA, Jan, mgr inz.

Buckling coefficients for St 3S steel used in section bars of plates of a thickness up to 4 mm. Inz i bud 19 no.2:81-85 F '62.

BRODKA, Jan, mgr inz.

Overcritical carrying capacity of thin walled beams of box cross section, taking into consideration the deformation of webs. Inz i bud 19 no.9:368-372 S '62.

1. Biuro Studiow i Projektow Konstrukcji Stalowych Mostostal, Warszawa.

BRODKA, Jan, mgr inz.; KLOBUKOWSKI, Jan, mgr inz.

Prestressed steel constructions; scope and application possibilities in Poland. Inz i bud 20 no.2:57-65 F '63.

1. Biuro Studiow i Projektow Konstrukcji Stalowych, "Mostolstal," Warszawa.

BRODKA, Jan, mgr inz.; KLOBUKOWSKI, Jan, mgr inz.

Special methods of prestressing steel structures. Inz i bud 20 no.7:225-231 Jl '63.

1. Biuro Studiow i Projektow Konstrukcji Stalowych "Mostostal," Warszawa.

BRODKA, Jan, mgr inz.

Survey of industrial constructions built of cold rolled sections. Inz i bud 20 no.8/9:308-313 Ag-S '63.

BRODKA, Jan, mgr inz.

New books. Inz i Bud 21 no.2:3 of cover F '64.

BRODKA, Jozef, inz.

Chemical cleaning of primary coolers in the "Viktoria" Coke-Chemical Plants. Wiad hut 15 no.6:188-189 Je '59.

PEROV, V.M.; BRODKIN, B.S.

Rescue of Belgian polar explorers. Inform. biul. Sov. antark. eskp. no.5:61-62 '59. (MIRA 12:10)
(Antarctic regions)

S/089/62/013/003/004/007
B102/B104

AUTHORS: Aksenov, V. A., Brodkin, E. B., Bushuyev, A. V., Polikarpov, V. I.

TITLE: $Cs^{139}$ gamma radiation

PERIODICAL: Atomnaya energiya, v. 13, no. 3, 1962, 271-274

TEXT: No detailed data for the gamma radiation spectrum of $Cs^{139}$ being available apart from those of Perkins and King (Nucl. Sci. and Engng. VII, 3, 1958), exact measurements were made, and some new lines discovered. The isotope was separated from the decay products of Kr and X contained in the gas channel of a research reactor by means of an aerosol filter. A scintillation spectrometer was used for studying the γ-spectrum, while NaI(Tl) and CsI(Tl) crystals with ФЭУ-13 (FEU-13) photomultipliers were used as detectors. The pulses from these were fed into a 100-channel pulse-height analyzer. At E = 0.661 Mev ($Cs^{137}$) the energy resolution was 9.5% and the non-linearity 1%. The background produced by the $Cs^{138}$ spectrum was measured, giving results in good agreement with the data of Strominger et al. (Rev. Mod. Phys. 30, no. 2, part II, 1958). The $Cs^{138}$

$Cs^{139}$ gamma radiation

and $Cs^{139}$ spectra were then recorded together. Besides the lines already known, namely 0.63 ± 0.03; 1.28 ± 0.03 (this being the strongest); 1.9 ± 0.08 and 3.40 ± 0.08 Mev, the following new lines were found: 0.50 ± 0.05; 0.80 ± 0.05; 0.90 ± 0.05; 1.05 ± 0.05; 1.65 ± 0.10; 1.90 ± 0.05; 2.08 ± 0.05 Mev. Spectral investigation at high energies yielded the lines 3.4, 4.0 ± 0.1 and 4.25 Mev. $E_\gamma$ = 4.25 Mev was the highest γ-quantum energy observed. There are 3 figures.

SUBMITTED: February 21, 1962

1. BRODKIN, I.

2. USSR (600)

4. Rubber Goods

7. Improving the utilization of technical rubber products. Za ekon. mat. No. 3, 1952.

9. Monthly List of Russian Accessions, Library of Congress, January 1953. Unclassified.

BRODKIN, M.S.

Automation of streetcar washing points. Rats. predl. na gor. elektrotransp. no.9:15-18 '64. (MIRA 18:2)

1. Depo im. Blokhina Tramvayno-trolleybusnogo upravleniya Leningrada.

BRODKIN, M.Ya., master

Increase in the service life of cutter-feeders. Energetik 10 . no.5:11 My '62. (MIRA 15:5)
(Electric power plants--Equipment and supplies)

BRODKIN, V. (g.Leningrad)

Fastening of transistor leads in a bolt clamp. Radio no.5:51 My '62. (MIRA 15:5)

(Transistors)

BRODKIN, Yu. A.

Journal of the American
Ceramic Society
July 1954
Abrasives

(2)

Quartz sand powders for glass grinding. YU. A. BRODKIN AND Z. M. ZIN'KOVA. *Steklo i Keram.*, 10 [9] 9-13 (1953).—Corundum proved 1.8 to 2.7 times more effective than quartz sand as an abrasive in glass grinding. In determining the quality of the surface with a profilometer-profilograph, the results were better with quartz sand. There was a definite relationship between the maximum depth of cavities and the deviation from the average line, as obtained with the counter of the instrument. This coefficient varied with the grain size from 4.9 to 7.8 for electrocorundum and from 6.5 to 7.0 for quartz sand. B.Z.K.

mf

BRODKIY, YU. A. FA 12T65

USSR/Abrasives May 1947
Glass industry

"Application of Artificial Abrasive Materials and Abrasive Instruments in Processing Glass," Yu. A. Brodkiy, Candidate in Technical Sciences, 1½ pp

"Stekol'naya i Keramicheskaya Promyshlennost'" No 4

Study of American and German experience with artificial abrasives as compared with natural.

12T65

BRODKO, A. S.
Min Higher Education Ukrainian SSR. Kiev Order of Lenin Polytechnic Inst.
Chair of General Technology of Silicates and the Technology of Binders.

BRODKO, A. S. - "Investigation of the processes of obtaining artificial marble and finishing cement from gypsum processed with potash alums." Min Higher Education Ukrainian SSR. Kiev Order of Lenin Polytechnic Inst. Chair of General Technology of Silicates and the Technology of Binders. Kiev, 1956.
(Dissertation for the Degree of Candidate in Technical Sciences.)

SO: Knizhnaya Letopis' No. 13, 1956

BRODKO, A. S., kand. tekhn. nauk

Thermochemical processes taking place during the heating of belite slime. Khim. prom.[Ukr.] no.1:43-46 Ja-Mr '62. (MIRA 15:10)

(Binding materials)
(Chemical industries—By-products)

LUPU, Al., prof. ing.; BRODMAN, D., ing.

Extraction of nickel as ferronickel from the serpentines of Rumania. Pt.1. Rev chimie Min petr 12 no.7:379-386 Jl '61.

BRODMAN, D.

Nickel extraction from the Rumanian serpentines as ferronickel. Note II. Rev chimie Min petr 13 no.3:129-133 Mr '62.

SANIELEVICI, H.; BRODMAN, F.; TEODORESCU, L.; PAUL, V.; PASCALIDE, R.; IACOB, B.; STULEANU, C.

Organic pigments for plastic materials. Pt 2. Rev chimie Min petr 13 no.11:668-674 N '62.

SANIELEVICI, H.; BRODMAN, F.; IACOB, B.; TEODORESCU, L.; PAUL, V.; PASCALIDE, R.; STULEANU, C.

Organic pigments for plastic materials. Pt. 1. Rev chimie Min petr 13 no.10:577-583 O '62.

BRODMAN, F.; STULEANU, C.; IACOB, B.; PAUL, V.

The anthraquinone-carbazolic dyestuffs. Rev chimie Min petr 14 no.4:222-223 Ap '63.

BRODMAN, Felicia; TEODORESCU, Lidia

Contributions to the analysis of 1,5-naphtholsulfonic acid. Rev chimie Min petr 14 no.6:346-347 Je '63.

L 64665-65
ACCESSION NR: AP5023227 RU/0003/64/015/010/0608/0610

AUTHOR: Brodman, Felicia; Pascalide, Roxandra 5
B

TITLE: Method for the obtaining of chlorinated copper phthalocyanine

SOURCE: Revista de chimie, v. 15, no. 10, 1964, 608-610

TOPIC TAGS: phthalocyanine, pigment, organocopper compound, chlorinated organic compound

ABSTRACT: The authors describe the preparation of green phthalocyanine pigment by chlorination of blue copper phthalocyanine. The halogenation takes place in a melt of aluminum chloride and thionyl chloride to which chlorosulphonic acid is added after the introduction of blue phthalocyanine. After stirring for a period of up to one hour at 165 to 175 degrees centigrade, chlorinated phthalocyanine with 14 to 16 chlorine atoms per molecule is obtained. Orig. art. has: 1 figure, 2 graphs, 4 tables.

Card 1/2

L 64665-65
ACCESSION NR: AP5023227

ASSOCIATION: none

SUBMITTED: 00 ENCL: 00 SUB CODE: OC, GC

NR REF SOV: 000 OTHER: 010 JPRS

Card 2/2

L 55284-66 EWP(j) RM

ACC NR: AP6029166 SOURCE CODE: RU/0003/66/017/002/0074/0077

AUTHOR: Brodman, Felicia; Teodorescu, Lydia; Savulescu, A.; Niculescu, G.

ORG: none

TITLE: Sulphochlorination of copper phthalocyanines

SOURCE: Revista de chimie, v. 17, no. 2, 1966, 74-77

TOPIC TAGS: phthalocyanine, dye chemical, nonmetallic organic derivative, chemical synthesis

ABSTRACT: The authors discuss the principles and methods of obtaining mono- and bi-reactive phthalocyanine dyes, and report on the experimental preparation of tetra-3-substituted phthalocyanine derivatives and the direct sulphochlorination of copper phthalocyanine. Orig. art. has: 1 figure, 1 table, and 2 formulas. [JPRS: 36,556]

SUB CODE: 07, 11 / SUBM DATE: none / OTH REF: 018

Card 1/1 JS UDC: 668.819.5.094.45:547.759.5

BRODNIANSKY, J.

Small production of shoes in Pukanec.

p. 622 (SLOVENSKY NARODOPIS) Vol. 5, no. 6, 1957,
Bratislava, Czechoslovakia

SO: Monthly Index of East European Accessions (EEAI) LC, Vol. 7, No. 3,
March 1958

BRODNIEWICZ, Aleksander

Investigation on the flea fauna in rats in Poznan. Przegl. epidem.Warsz. 9 no.1:65-68 1955.

1. Z Zakladu Higieny A.M. w Poznaniu--Pracownia Przeciwszczurza p.o. Kierownik: dr A. Brodniewicz.
(FLEAS
rat fleas survey)

BRODNIEWICZ, A.

Polish-Czechoslovak symposium on Disinfection, Disinfestation and Deratization
P 315

POLAND
ROCZNIKI (Panstwowy Zaklad Higieny) Warsaw Vol. 9, no. 3, 1958

Monthly List of East European Accessions (EEAI) LC. Vol. 8, no. 7, July 1959

Uncl.

BRODNIEWICZ, A.; LEWICKI, C.; SZUBER, T.

Studies on the population of rats within the territory of the city of Torun. Roczn panstw zakl hig 14 no.1:9-16 '63.

1. Department of Disinfection, Disinfestation and Deratization, State Institute of Hygiene, Warsaw, and Sanitary and Epidemiological Station of the City of Warsaw.

BRODNIEWICZ, Aleksander, doc. dr

Importance of fumigation of vessels, cargo and harbor facilities for sanitary protection of state borders. Tech gosp morska 12 no.7/8:205-209 Jl-Ag '62.

1. Zaklad Dezynfekcji, Dezinsekcji i Deratyzacji Panstwowego Zakladu Higieny, Warszawa.

SZUBER, T.; BRODNIEWICZ, A.

The effectiveness of some anticoagulant rodenticide dusting powders. J. hyg. epidem. (Praha) 8 no.3:332-337 '64

1. Department of Disinfection , Insect and Rodent Control, State Institute of Hygiene, Warsaw, and Department of Hygiene, Academy of Physical Education, Warsaw.

BRODNIEWICZ, I.

Three interesting species of Diplopoda (Glomeris, Diplopoda) from central Great Poland. p.265.

BADANIA FIZJOGRAFICZNE NAD POLSKA ZACHODNIA. Poznan, Poland. Vol.4, 1958.

Monthly List of East European Accessions Index (EEAI), LC. Vol. 8, No. 9, September 1959 Uncl.

COUNTRY : USSR
CATEGORY : Cultivated Plants. Fruits. Berries. E

ABS. JOUR. : RZhBiol., No. 23 1958, No. 104300

AUTHOR : Bronnikovskiy, A. I.
INST. : Tadzhik Scientific Research Institute of Orchard *)
TITLE : Productivity of the Buds of the Grapevine Shoot in the Conditions of Dry Agriculture.

ORIG. PUB. : Byul. nauchno-tekhn. inform. Tadzh. n.-i. in-t sadovodstva vinogradarstva i subtrop. kul'tur, 1957, vyp.1, 20-23

ABSTRACT : Experiments on the plots of Varzobskaya Mountain Botanical Station of the Academy of Sciences, Tadzhik SSR and at Kolkhoz imeni Voroshilov in Varzobskiy rayon (1952-1956) in the conditions of dry farming showed that with the lengthening of the fruit spur of the grapevine to 10 buds, the number of fruit bearing spurs increases at the expense of the increase in the productivity of the buds to the extent of their distance from the base of the spur; with the long pruning, the increase in the yield is attributable not only to a larger number of clusters on a vine but also to an increase in their average weight.

CARD: 1/2

COUNTRY :
CATEGORY : M

ABS. JOUR. : RZhBiol., No. 1958, No. 10805

AUTHOR :
INST. :
TITLE :

ORIG. PUB. :

ABSTRACT : In 1954, with long pruning, variety Tayfi rozovyy produced 27.4 kg of grapes per vine with an average weight of the bunch of 527 grams, and with short pruning - 11.8 kg and 454 grams respectively. The inefficiency of pruning grapevine shoots to 2-3 buds, as practiced at the present time in the kolhozes of Tadzhikistan, is pointed out. -- Ye. T. Zhukovskaya

CARD: 2/2

NIKOLAYEVA, M.I.; CHUVAYEV, P.P.; BRODNIKOVSKIY, M.I.

Some methods of increasing the frost resistance of grapevines as related to the dynamics of carbohydrate metabolism. Trudy Otd. fiziol. i biofiz. rast. AN Tadzh. SSR 1:76-105 '62. (MIRA 16:3)
(Plants—Frost resistance) (Carbohydrate metabolism)
(Tajikistan—Grapes)

BRODNITSKIY, K.P.

1

31739
S/136/61/000/012/001/006
E091/E335

18.3100

AUTHORS: Gindin, L.M., Bobikov, P.I., Patyukov, G.M., Dar'yal'skiy, V.A., Brodnitskiy, K.P. and Kasavin, I.A.

TITLE: Electrolytic-extraction method for the production of high-purity cobalt

PERIODICAL: Tsvetnyye metally, no. 12, 1961, 22 - 26

TEXT: The basic method for the production of high-purity cobalt is its purification from other metals by double extraction and the final electrolytic separation of the metallic cobalt. Cobalt is separated from less alkaline metals during double extraction and, subsequently, it is separated from more alkaline ones, which plate out at the cathode to a certain extent, by electrodeposition. In the above technological scheme, an ion-exchange separation from Pb and Zn is used, in addition to the double-extraction purification of cobalt solutions. However, variations of this scheme are possible in which only extraction-purification without ion exchange is carried out. This method is based on the double reactions between metals in different phases: in the organic phase, in the form of fatty acid salts (soap) and

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2

2

31739
S/136/61/000/012/001/006
Electrolytic-extraction method ... E091/E335

in the aqueous phase, in the form of mineral acid salts (chlorides or sulphates). Fatty acids of the $C_7$-$C_9$ fraction (monocarbonic acids of the aliphatic series) are used in the organic phase; these participate in the formation of the corresponding metal salts and are also solvents for the soaps formed. The principles underlying this method are discussed and the procedure is outlined. The method has many advantages over the double extraction-electrolytic one. The following are the main advantages: 1) the purification of the Co solution from impurities is completely automated and mechanized;
2) filtration of solid cakes and operations associated with processing and unloading are dispensed with;
3) the extraction of Co is higher and the losses lower;
4) compared with the normal hydrometallurgical process, this method of Co-production results in a higher quality metal;
5) purification is carried out at normal temperature and pressure;

Card 2/3

31739
S/136/61/000/012/001/006
Electrolytic-extraction method .. E091/E335

6) working conditions are healthier;
7) production costs are lower.

There are 1 figure, 1 table and 4 Soviet-bloc references.

K

Card 3/3

BRODNZ, B.D.

Study of the correlation between the minimal sensitizing and the permissible doses of tissue and serum antigens in various stages of sensitization. Biul. eksp. biol. i med. 52 no.8:86-90 Ag '61. (MIRA 15:1)

1. Iz otdela immunologii i onkologii (zav. - deystvitel'nyy chlen AMN SSSR L.A.Zil'ber) Instituta epidemiologii i mikrobiologii imeni N.F.Gamalei (dir. - prof. S.N.Muromtsev [deceased]) AMN SSSR, Moskva.

(ANTIGENS AND ANTIBODIES) (ANAPHLAXIS)

ACC NR: AP7002637 (A,N) SOURCE CODE: UR/0413/66/000/023/0186/0186

INVENTOR: Brodolin, L. I.; Bekin, B. S.

ORG: None

TITLE: A nonvolatile capacitor memory. Class 42, No. 141015

SOURCE: Izobreteniya, promyshlennyye obraztsy, tovarnyye znaki, no. 23, 1966, 186

TOPIC TAGS: computer memory, dielectric capacitor, dielectric breakdown

ABSTRACT: This Author's Certificate introduces a nonvolatile capacitor memory. The unit is designed for improved electrical, technological and operational characteristics, reduced overall dimensions and recording of information after assembly of the unit (volumetric coding). The memory is made in the form of a packet of sheets of capacitor paper (or film) metallized on one side with interleaves consisting of perforated sheets of dielectric with shielding layers. This packet is pierced by metal bars (needles) and elementary capacitors are formed between the needles and the metal coating on the sheets of paper (or film) with the puncturing process. Information is recorded (an elementary capacitor is destroyed) by using the effect of electrical breakdown of the dielectric in the elementary capacitor when one of the shielding layers is burned out.

SUB CODE: 09/ SUBM DATE: 27Nov59

Card 1/1

SHEVCHENKO, A.K., kand. biolog. nauk; BRODOTSKAYA, A.D.; ROBTSER, A.N.

Some problems in the epidemiology of ascariasis and methods of its liquidation in Kharkov Province. Med. paraz. i paraz. bol. 31 no.6:688-693 N-D '62. (MIRA 17:11)

1. Khar'kovskaya oblastnaya sanitarno-epidemiologicheskaya stantsiya (glavnyy vrach I.I. Chernov).

ZHUNEV, P.A.; EKSLER, L.I.; BRODOTSKAYA, I.Z.

Coefficients of friction in lubricated valves. Mash. i neft. obor. no. 11:23-24 '65. (MIRA 18:12)

1. Moskovskiy filial TSentral'nogo konstruktorskogo byuro armaturostroyeniya.

KIRILLOV, Nikolay Mikhaylovich; BRODOTSKIY, A.I., red.; PLESKO, Ye.P., red.izd-va; KARASIK, N.P., tekhn.red.

[Calculation of thermal wood treatment processes under conditions of intense heat exchange] Raschet protsessov teplovoi obrabotki drevesiny pri intensivnom teploobmene. Moskva, Goslesbumizdat, 1959. 87 p. (MIRA 13:3)
(Wood) (Heat--Transmission)

BRODOTSKIY, A.I., kandidat tekhnicheskikh nauk.

Determining depressions in dandy rolls with the help of nomograms. Bum. prom. 32 no.5:13-14 My '57. (MLRA 10:6)
(Papermaking machinery)

EYDLIN, Isaak Yakovlevich, dots., kand. tekhn. nauk; BRODOTSKIY, A.I., red.; KHOT'KOVA, Ye.S., red. izd-va.; PARAKHINA, N.L., tekhn. red.

[Rolls for papermaking and finishing machinery] Valy bumagodelatel'nykh i otdelochnykh mashin. Moskva, Goslesbumizdat, 1961. 167 p. (MIRA 14:9)

(Papermaking machinery)

EYDLIN, Isaak Yakovlevich. Prinimali uchastiye VANCHAKOV, V.M., inzh. [deceased]; LATVINOV, M.D., inzh.; KOZULIN, N.A., doktor tekhn. nauk, prof., ofitsial'nyy retsenzent; GOLOVKO, Ye.M., inzh., ofitsial'nyy retsenzent; KLOPOV, V.M., inzh., ofitsial'nyy retsenzent; BRODOTSKIY, A.I., kand. tekhn. nauk, dots., red.; KHIVRICH, Ye.D., red. izd-va; GRECHISHCHEVA, V.I., tekhn. red.

[Papermaking and finishing machines] Bumagodelatel'nye i otdelochnye mashiny. Izd.2., perer. i dop. Moskva, Goslesbumizdat, 1962. 686 p. (MIRA 16:5)
(Papermaking machinery)

SHAVOLOV, Sergey Yevgen'yevich; BRODOTSKIY, A.I., red.; ZLOTNIKOVA, Ye.A., red.izd-va; SHIBKOVA, R.Ye., tekhn. red.

[Engineering methods for the design of the elements of papermaking machines and various devices] Inzhenernye metody rascheta elementov bumagodelatel'nykh mashin i razlichnykh ustroistv. Pererabotannoe i dopolnennoe izdanie knigi "Sopротivlenie materialov." Moskva, Goslesbumizdat, 1963. 540 p. (MIRA 16:8)

(Papermaking machinery--Design and construction)
(Strength of materials)

BRODOTSKIY, A.I.; GUSACHENKO, M.P. [deceased]; REVIS, I.A.

Studying some problems of the endurance of high-speed cast steel as dependent on the technolcgical factors. Trudy LTITSBP no.14: 22-31 '64. (MIRA 18:5)

AKIM, Eduard L'vovich; PEREPECHKIN, Lev Pavlovich; BRODOTSKIY, A.I., red.

[Cellulose, acetyl cellulose and acetate fibers] TSelliuloza, atsetiltselliuloza, atsetatnye volokna. Moskva, Lesnaia promyshlennost', 1964. 113 p.
(MIRA 17:12)

KOSSOY, Antsel' Solomonovich; BRODOTSKIY, A.I., red.

[Industrial use of logging slash] Promyshlennoe ispol'zovanie lesosechnykh otkhodov. Moskva, Izd-vo "Lesnaia promyshlennost'," 1964. 115 p.
(MIRA 18:1)

SHKARIN, Sergey Aleksandrovich, kand. tekhn. nauk; PERELYGINA, Anna Ivanovna, kand. tekhn. nauk; BRODOTSKIY, A.I., red.

[Manufacture of newsprint on high-speed machines] Proizvodstvo gazetnoi bumagi na bystrokhodnykh mashinakh. Moskva, Lesnaia promyshlennost', 1964. 136 p. (MIRA 18:5)

ZHUCHKOV, Pavel Alekseyevich; BRODOTSKIY, A.I., red.

[Drying processes in woodpulp and paper production] Protsessy sushki v tselliulozno-bumazhnom proizvodstve. Moskvaa, Lesnaia promyshlennost', 1965. 250 p.
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AUTHOR: Zusman, L. L. (Candidate of Economic Sciences), and Brodov, A. A. (Engineer)

TITLE: Economy and Organization of Production. Iron Balance in National Economy

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ABSTRACT: The balance of iron in the national economy is indicated by the growth of the national metal reserve related to iron supplied from natural resources, metal scrap, and by total iron waste at different stages of production and in the functions of metal fund during the period reviewed. In 1956, the balance of iron in the national economy was based on the balance of iron in such phases of industry as: agglomerate, blast furnace, open-hearth furnace, Bessemer converter, electromelting, rolling, pipe rolling, steel melting, foundry, hardware, electroferroalloys, metalworking, and construction. It was also based on the statistical data of both the national metal fund and

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the foreign trade in ferrous metals and metal products. In 1956, the amount of iron ore mined and other rudimentary raw materials produced contained 45,600,000 tons of iron ore including 40,900,000 tons that were processed. In the same year, all stages of production and development of ferrous metals salvaged 27,800,000 tons of reusable metal scrap containing 24,600,000 tons of iron. In the field of foreign trade, 4,700,000 tons of iron ore, together with 4,000,000 tons of iron content in cast iron, rolled iron, and other metal products, were exported; in the same period, 2,100,000 tons of iron content in cast iron, rolled iron, and other metal products were imported. Therefore, in 1956, iron export exceeded iron import by 6,600,000 tons. The investigation of the iron balance in ferrous metallurgy was performed by A. A. Tsvetayev, and the balance of scrap with the participation of M. P. Lapitskaya and N. F. Sklokin. There are 8 tables; and 6 Soviet references.

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